

US EPA ARCHIVE DOCUMENT



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October 12, 2011

Mr. Kenneth S. Bardo
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard
Corrective Action Section (LU-9J)
Chicago, IL 60604-3590

SUBJECT: Occidental Chemical Corporation, Montague, Michigan – MID 006 014 906
August 2111 Soil Gas Sampling Results
South of Old Channel Trail near Montague, Michigan

Dear Mr. Bardo:

Glenn Springs Holdings, Inc. (GSH) has completed the August 2011 gas sampling event proposed in the Interim Update on First Round Soil Gas Sampling Results and Work Plan Addendum for Soil Gas Investigation South of Old Channel Trail near Montague, Michigan (July 7, 2011). The results and conclusions from the 2nd soil gas sampling event are presented.

As proposed in the work plan, a final report of findings will be issued after the final sampling event scheduled in November 2011.

If you have any questions concerning this information, please contact me at (972) 687-7506 or on my cell at (859)421-4233.

Sincerely,
Glenn Springs Holdings, Inc.

Clint Babcock
Project Manager

Enclosures

c: Dan Dailey, MDEQ (P.O. Box 30241, Lansing, MI 48909)
Joe Branch, GSH
James Tolbert, AECOM (*electronic only*)
Barry Harding, AECOM
File 60215783



Environment

Prepared for:
Glenn Springs Holdings, Inc.
MID 006 0014 906
Dallas, TX

Prepared by:
AECOM
Grand Rapids, Michigan
60215783
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Soil Gas Sampling Results for Soil Gas Investigation, Second Sampling Event August 2011 South of Old Channel Trail near Montague, Michigan

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Acronyms

Accutest	Accutest Laboratories
AF	attenuation factor
c-1,2-DCE	cis-1,2-dichloroethylene
CT	carbon tetrachloride
FD	Final Decision
Ft bgs	Feet below ground surface
GSH	Glenn Springs Holdings, Inc.
HCA	Hexachloroethane
HI	hazard index
HQ	hazard quotient
IPA	isopropyl alcohol
ml/min	milliliters per minute
OCC	Occidental Chemical Company
PCE	Tetrachloroethene
ppbv	parts per billion by volume
RSL	Regional Screening Level
SGMP	Soil Gas Monitoring Points
t-1,2-DCE	<i>trans</i> -1,2-dichloroethylene
TCE	trichloroethylene
ug/m ³	micrograms per cubic meter
U.S. EPA	United States Environmental Protection Agency

1.0 Introduction

Occidental Chemical Corporation (OCC) operated a chemical plant on Old Channel Trail in Montague Township, Michigan ("Site"). At this Site, OCC produced several products such as chlorine gas from 1954 through 1982 and hexachlorocyclopentadiene (C-56) from 1954 through 1977. Significant remedial activities were completed from 1979 through 1982 under a consent judgment with the State of Michigan. All of the manufacturing operations for C-56 were removed from the site or placed in an on-site secure landfill, and waste materials and impacted soils were excavated and placed in the on-site secure landfill. A stable and well-defined groundwater plume is present at the Site.

Currently, Glenn Springs Holdings, Inc. (GSH) operates the groundwater collection and treatment system, provides post-closure care for the landfill, and maintains the Site. GSH also complies with the requirements of the Resource Conservation and Recovery Act Corrective Action under an administrative order with the United States Environmental Protection Agency (U.S. EPA). GSH is an affiliate of OCC.

Due to complex remedial challenges at the Site, a *Post-Implementation Technical Impracticability Evaluation for Groundwater Restoration Report* was prepared and submitted to the U.S. EPA Region 5 for the Former OCC facility (U.S. EPA I.D. No. MID 006 014 906) (AECOM, 2009). The Technical Impracticability Evaluation was approved by the U.S. EPA on October 13, 2010 in an Amended Final Decision and Response to Comments for Selection of Updated Corrective Measures document (the Amended Final Decision (FD), U.S. EPA, 2010). The Amended FD from U.S. EPA required submitting a work plan to the U.S. EPA to "characterize the vertical concentration of volatile organic compounds and hexachloroethane (HCA) in soil gas above the defined groundwater contaminant plume south of Old Channel Trail, including the locations of potential receptors at private residences along Old Channel Trail and McFall Drive, and estate buildings on OCC property."

This update summarizes the soil gas monitoring point (SGMP) installation and analytical results from the initial soil gas sampling event completed in May 2011 and focuses on results of the second soil gas sampling event in August 2011. Results from May 2011 are included for comparative purposes. Data are presented with a preliminary screening. A more complete evaluation of data will occur after the third sampling event and a final report will be prepared for U.S. EPA.

The soil gas investigation was performed following the Work Plan dated February 7, 2011 (AECOM, 2011) and approved by the U.S. EPA on March 7, 2011. Installation of two additional SGMP and the August sampling event was proposed to Region 5 EPA in the *Interim Update on First Round Soil Gas Sampling Results and Work Plan Addendum for Soil Gas Investigation* document dated July 7, 2011. U.S. EPA provided verbal approval of the work plan addendum in a telephone conference with AECOM and GSH staff on July 26, 2011.

2.0 Soil Gas Monitoring Point Installation

SGMP-01 through SGMP-07 were installed at the Site from May 16 to 18, 2011 using direct-push Geoprobe for intermediate and deep SGMPs and hand-auger methods in the shallow SGMPs. On August 4, 2001, SGMP were installed at two additional locations, SGMP-08 and SGMP-09, with monitoring points at the 5-foot, 15-foot and 30-foot depths. These SGMPs were installed to monitor soil gas along the eastern flank of the groundwater plume. SGMP-08 and SGMP-09 are also located adjacent to residences located along Pack Street. All SGMPs are on OCC property and not on property used for full-time residences. The SGMP locations are shown on **Figure 1**.

- A total of 27 SGMPs are installed at nine locations overlying the groundwater plume. SGMP-08 and SGMP-09 are on the extreme eastern edge of the plume.
- SGMPs were installed in separate boreholes at depths of 4.5 to 5-feet (S), 14.5 to 15 feet (I) and 29.5 to 30 feet (D) at all nine locations.
- Three SGMPs are located within the OCC property, away from the property boundary and away from residential receptors. SGMP-01 (S, I and D) and SGMP-02 (S, I and D) were installed proximal to the Occidental Conference Building. SGMP-03 (S, I and D) was installed over the central portion of the groundwater plume near the purge well network.
- SGMP-08 (S, I and D) and SGMP-09 (S, I and D) are installed just west of Pack Street on OCC property, near residential receptors.
- Four SGMPs are located on OCC property at locations near off-site residential property located over the western portion of the plume south of Old Channel Trail. SGMP-04 (S, I and D) is installed approximately 500 feet east of McFall Circle. SGMP-06 (S, I and D) and SGMP-07 (S, I and D) are installed up gradient and north of residences on Blueberry Ridge Drive. SGMP-05 (S, I and D) is installed over the central portion of the groundwater plume close to the boundary of residential property.
- Soil encountered was predominately fine grain sand, with medium grain horizons, including at SGMP-08 and SGMP-09.
- No volatile organic compounds were detected in soils during field screening with photo-ionization detector used during the installation of the SGMPs.
- No odors were observed while installing the SGMPs.
- All SGMPs were completed with stick-up pro-style covers.

Soils were logged by certified professional geologist using the Unified Soil Classification System. Soil boring and SGMP construction logs for SGMP-8 and SGMP-09 are presented in **Appendix A**.

3.0 Soil Gas Purging and Sampling

The second soil gas purging and sampling event was performed during the week of August 15, 2011. A total of 20 soil gas samples and one duplicate sample were collected from SGMP-01 through SGMP-09 locations. The shallow and intermediate sample depths were collected at SGMP-01 through SGMP-07. The shallow, intermediate and deep samples were collected at SGMP-08 and SGMP-09. Samples SGMP-08D-1 and SGMP-08D-2 are duplicate samples collected concurrently from SGMP-08D using a T-connector. SGMP-08D-1 is the primary sample, and sample SGMP-08D-2 is the duplicate sample which serves as a sample to verify data reproducibility.

Soil gas sampling was performed at a rate of approximately 150 ml/min using 6-liter capacity Summa canisters from August 15 through August 17, 2011. During sampling, isopropyl alcohol (IPA) was present at the ground surface to evaluate leakage at all sampling points. Oxygen and carbon dioxide measurements were collected at each SGMP during purging. The soil gas samples were shipped to Accutest Laboratories (Accutest), New Jersey, under chain-of-custody documentation and analyzed using TO-15 for target analytes, as specified in the work plan. The samples arrived at Accutest during the week of August 15, 2011. All samples were analyzed within the recommended method hold time. All method blanks for the samples met TO-15 method specific criteria.

Tabulated analytical results for the August 2011 event are presented in **Table 1**, and for May and August 2011 in **Table 2**. Laboratory analytical results are presented in **Appendix B**. SGMP sampling forms are attached in **Appendix C**.

4.0 Field Quality Assurance

During the August 2011 sampling event, 91% grade IPA was used to verify integrity of above-grade sample line connections from the SGMP to the summa canisters. IPA concentrations in the collected soil gas samples ranged from 0.96 ppbv (SGMP-09S) to 177 ppbv (SGMP-08I). The IPA concentrations are orders of magnitude below the concentration that would suggest a leak or compromised soil gas sample of 100 ug/m³ IPA (approximately 40,000 ppbv of IPA at standard temperature and pressure) (see the letter from GSH to the U.S. EPA dated March 22, 2011).

During soil gas purging, carbon dioxide and oxygen were measured using a GEM™ landfill gas meter. Carbon dioxide concentrations in soil gas were higher than in ambient air conditions. Oxygen concentrations in soil gas were generally slightly lower or the same as in ambient air. Site soil gas falls within the range for naturally occurring concentrations in soil gas for carbon dioxide, approximately 0.5% and oxygen 15 to 21% (AFCEE, 2011). Carbon dioxide and oxygen concentrations are summarized in **Appendix D**.

Tetrachloroethene (PCE) was detected at a concentration of 1.7 ug/m³ at SGMP-08D-1 and 1.8 ug/m³ at SGMP-08D-1, indicating little data variability at the duplicate sample location.

5.0 Analytical Results

During the August 2011 sampling event, compounds reported above method detection limits in soil gas include carbon tetrachloride (CT), chloroform, trichloroethylene (TCE) and PCE. Hexachloroethane (HCA), cis-1,2-dichloroethylene (c-1,2-DCE) and trans-1,2-dichloroethylene (t-1,2-DCE) were not reported above method detection limit at any SGMP.

- Chloroform was infrequently detected, and ranged from not detectable ($< 0.14 \text{ ug/m}^3$) to 4.9 ug/m^3 (SGMP-02S).
- CT ranged from not detectable ($< 1.3 \text{ ug/m}^3$) to $2,100 \text{ ug/m}^3$ (SGMP-01I).
- TCE ranged from not detectable ($< 0.21 \text{ ug/m}^3$) to 2.3 ug/m^3 (SGMP-01I).
- PCE was detected at all 20 SGMPs with concentrations from 0.81 ug/m^3 (SGMP-08S) to $6,980 \text{ ug/m}^3$ (SGMP-01I).

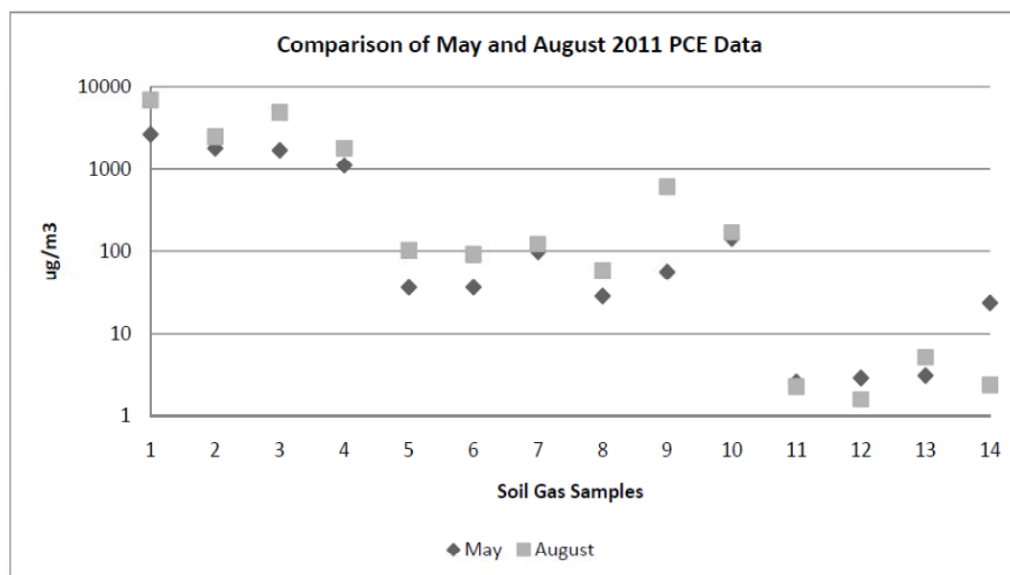
In general, compound concentrations decreased from the intermediate SGMP to the shallow SGMP at all locations, consistent with a diffusion-driven soil gas system in the sandy soil column. Three depths were sampled at the new SGMP. PCE was reported at concentrations of 1.7 ug/m^3 (30-foot depth), 2.9 ug/m^3 (15-foot depth) and 0.81 ug/m^3 (5-foot depth). PCE was reported at concentrations of 16 ug/m^3 (30-foot depth), 14 ug/m^3 (15-foot depth) and 5.7 ug/m^3 (5-foot depth) at SGMP-09.

Tabulated analytical results for May and August 2011 are attached in **Table 2**.

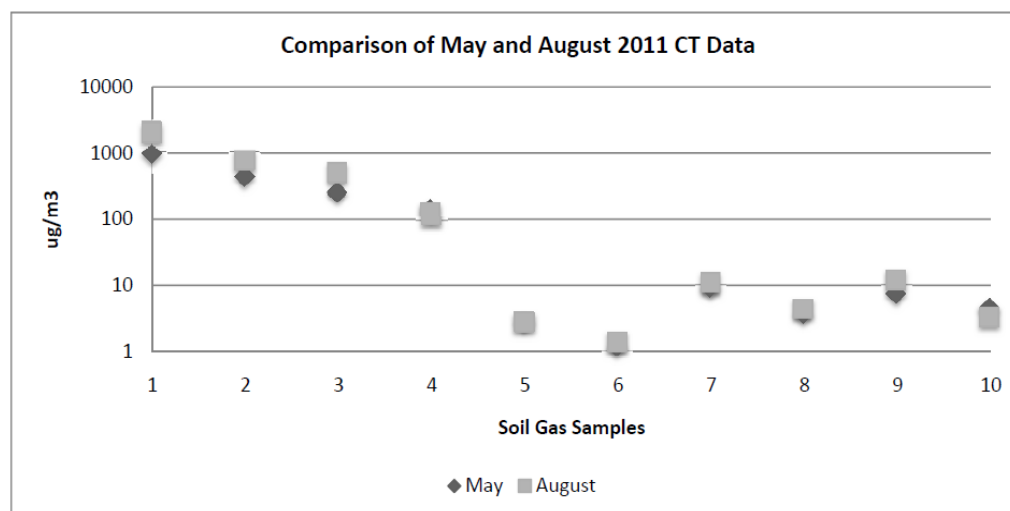
5.1 Comparison to May 2011 Results

Concentrations detected at each SGMP in May and August 2011 are comparatively consistent. There are 24 pairs of analyses for the same SGMP for PCE and CT, the two main constituents identified. Of these 24 constituents, the August sample was within a factor of three of the May sample in 22 of the 24 samples.

PCE is the only compound consistently found in all SGMPs. A comparison of PCE concentrations at SGMP-01 through SGMP-07 (shallow and intermediate depths) indicates that less variation in concentrations occurred in the shallow SGMP versus the intermediate SGMP. The graph below shows PCE concentrations from 14 paired soil gas samples (soil gas samples 1 and 2 correspond to the intermediate and shallow sample depths, respectively at SGMP-01).



CT is the second most common constituent found in soil gas at the site. A comparison of CT concentrations at SGMP-01 through SGMP-05 (shallow and intermediate depths) indicates a low variability in CT concentrations from May to August sampling events. The graph below shows CT concentrations from 20 soil gas samples (soil gas samples 1 and 2 correspond to the intermediate and shallow sample depths, respectively at SGMP-01).



Additional information regarding data variability and reproducibility will be discussed in a report after the third sampling event.

6.0 Applicable Attenuation Factors

Applicable Attenuation Factors (AF) for the Site are U.S. EPA's suggested and conservative values of 0.1 and 0.01 for shallow and deep samples, respectively. Shallow soil gas is defined as soil gas collected equal to 5 feet below ground surface (ft bgs), and deep soil gas is defined as soil gas collected deeper than 5-ft bgs (U.S. EPA, 2008).

7.0 Soil-Gas Comparisons to Screening Levels

A comparison of the soil gas analytical results to risk-based soil gas screening levels was performed and is presented on **Tables 1 and 2**. Risk-based soil gas screening levels were derived by dividing the indoor air risk-based screening level for a residential or estate worker exposure scenario, described further in the next two paragraphs, by the soil gas to indoor air attenuation factors (see Section 6.0).

For sample locations SGMP-01, SGMP-02, and SGMP-03 located near the on-site estate facilities, risk-based indoor air screening levels were derived to be protective of the estate workers and guest who occupy the buildings intermittently. These workers are assumed present up to 20 days per year, 24 hours per day, for a 25-year period based on reported property use. The assumed 25-year exposure duration is the U.S. EPA's recommended default for a worker exposure scenario. The risk-based indoor air screening levels protective of estate workers were derived using the U.S. EPA's Regional Screening Level (RSL) on-line calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) for a site-specific exposure scenario for a worker in the estate area buildings using the exposure assumptions discussed above, a target risk level of 1×10^{-5} and target hazard quotient (HQ) of 1. The RSL calculator output showing the derived screening levels specific to an estate worker scenario is presented in **Table 3**.

For sample locations SGMP-04, SGMP-05, SGMP-06, SGMP-07, SGMP-08 and SGMP-09, indoor air screening levels are equal to the published U.S. EPA RSLs (June 2011) for residential air, based on an exposure frequency of 350 days-per-year, an exposure time of 24-hours-per-day, an exposure duration of 30 years, and a target risk level of 1×10^{-5} and target HQ of 1.

Table 1 presents the analytical soil gas results collected in the August 2011 sampling event and a comparison of these results to the risk-based soil gas screening levels discussed above. As shown on **Table 1**, PCE was the only compound detected above soil gas screening levels in the August 2011 sampling event. PCE was detected at concentrations above the soil gas screening level in shallow soil gas (5 ft bgs) at four locations including SGMP-01S, SGMP-02S, SGMP-04S, and SGMP-05S and in intermediate soil gas (15 ft bgs) at one location, SGMP-05I. SGMP-01 and SGMP-02 are in the on-site estate facility area and SGMP-04 and SGMP-05 are in the residential area. The SGMPs located within the residential area (SGMP-06S,I) and SGMP-07S,I) did not contain any target compounds at concentrations exceeding the soil gas screening levels.

Table 2 presents the analytical soil gas results collected in both the May 2011 and August 2011 sampling events and a comparison of these results to the risk-based soil gas screening levels discussed above. As shown on **Table 2**, PCE is the only compound detected in soil gas at concentrations above the soil gas screening levels in either of the May 2011 or August 2011 sampling events. In the May 2011 event, PCE was detected at concentrations above the soil gas screening level in shallow soil gas at three of the four locations showing exceedances in the August 2011 sampling event, including SGMP-01S, SGMP-02S, and SGMP-05S. PCE was also detected in deep soil vapor (30 ft bgs) in the May 2011 sampling event above the soil gas screening level at one location, SGMP-05D. Two of these locations are in the on-site estate facility area and one of the locations is near the off-site residential area.

No exceedances were observed in soil gas collected from SGMP-08 and SGMP-09, indicating these two locations adequately delineate the boundary of any soil gas on the eastern boundary of the OCC property.

8.0 Future Work

GSH has completed two rounds of soil gas sampling as described in the approved Work Plan (AECOM, 2011a), and Work Plan Addendum (AECOM, July 7, 2011b). During this event, an evaluation of the cumulative risk or hazard index from all of the compounds detected has not been performed at this time, as requested by U.S. EPA in telephone conference On June 26, 2011

GSH will complete a third round of soil gas samples as scheduled in November 2011. Moving forward, future work at the Site will include:

- Continue to implement the third round of air sampling from the approved Work Plan in November 2011.
- Upon completion of the third round of sampling, GSH will prepare a Final Report of Findings as described in the approved work plan.
- As part of the Final Report of Findings, GSH will prepare additional evaluation and recommendations for potential investigation or remedial responses at the Site.

References

AECOM, 2009. Post-Implementation Technical Impracticability Evaluation for Groundwater Restoration at the Occidental Chemical Corporation Site in Montague, Michigan.

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AECOM, 2011b. Interim Update on the First Round Soil Gas Sampling Results and Work Plan Addendum for Soil Gas Investigation South of Old Channel Trail near Montague, Michigan.

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<http://www.afcee.af.mil/resources/technologytransfer/programsandinitiatives/bioventing/sitescreening/index.asp>

GSH, March 22, 2011. Response to EPA Comments, dated March 7, 2011.

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U.S. EPA, 2008. Draft U.S. EPA's Vapor Intrusion Database: Preliminary Evaluation of Attenuation factors, Office of Solid Waste, U.S. EPA, Washington, DC.

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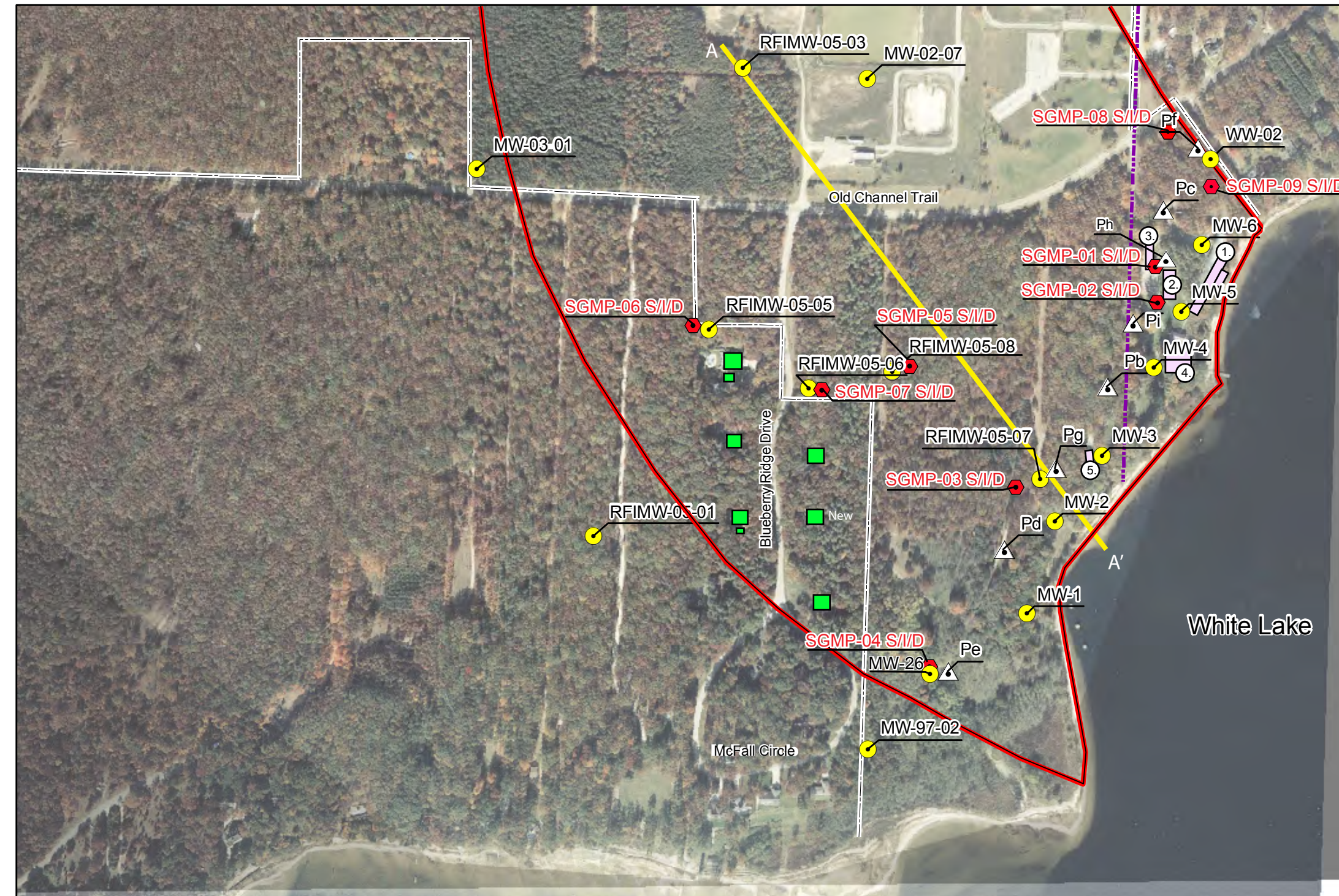
U.S. EPA, 2011a. Approval of Soil Gas Investigation Work Plan, letter to GSH, dated March 7, 2011.

U.S. EPA, 2011b. On-line VI Database Tool

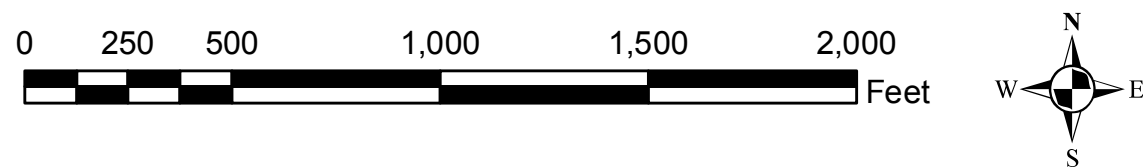
<https://iavi.rti.org/OtherDocuments.cfm?PageID=documentDetails&AttachID=369>

U.S. EPA's RSL on-line calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

Figures



Aerial Photo Source: Abrams Aerial Survey Corporation



- MW-05-02 ● Monitoring Well
Ph ▲ Purge Well
----- Glenn Springs Holdings Property
● Soil Gas Monitoring Points
S = 5'
I = 15'
D = 30'
----- Montague Township Boundary
----- Impacted Groundwater
----- Cross section Location
■ Residential Building
■ Occidental Buildings (Part-Time Occupancy)
① Recreation Hall
② Conference Building
③ 3 Bedroom Laundry Building
④ White House
⑤ Caretaker's House

AECOM

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DRAWN BY: C.Plank DATE: June, 2011

CHECKED BY: BH EDITED BY:

FILE NAME:

FIGURE 1

Soil Gas Monitoring Points
Location Map,
June 2011

Former Occidental Chemical Site
Montague, MI

PROJECT NUMBER 60143500 SCALE: As shown

Tables

Table 1
Summary of Soil Gas Results Collected in August 2011
Former Occidental Chemical Facility
Montague, Michigan

Client Sample ID:	UNITS	Soil Gas Screening Levels (a)(c) (Site-specific Indoor Worker Exposure)			SGMP-01I	SGMP-01S	SGMP-02I	SGMP-02S	SGMP-03I	SGMP-03S
Lab Sample ID:					JA84264-2	JA84264-1	JA84264-4	JA84264-3	JA84264-6	JA84264-5
Date Sampled:		Shallow 5' (AF = 0.1)	Intermediate/ Deep 15' and 30' (AF = 0.01)	8/15/2011	8/15/2011	8/16/2011	8/16/2011	8/16/2011	8/16/2011	
Matrix:				Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	
					Comp.	Comp.	Comp.	Comp.	Comp.	Comp.
					AT NORTH END OF CONF BLDG		AT SOUTH END OF CONF BLDG		RFI-MW-05-07 PLUME CENTERLINE OXY RESORT	
GC/MS Volatiles (TO-15)										
Chloroform	ug/m3	222	2,220		1.6	4.3	ND (0.98)	4.9	ND (0.98)	ND (0.98)
Carbon tetrachloride	ug/m3	852	8,520		2100	761	502	121	2.8	1.4
trans-1,2-Dichloroethylene	ug/m3	11,000	110,000		ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
cis-1,2-Dichloroethylene	ug/m3	11,000	110,000	(d)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
Hexachloroethane	ug/m3	1,280	12,800		ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Tetrachloroethylene	ug/m3	866	8,660		6980	2480	4950	1800	102	91.5
Trichloroethylene	ug/m3	1,830	18,300		2.3	1.5	0.81	0.70	ND (0.21)	1.5
TRACER										
Isopropyl Alcohol	ppbv	NA	NA		0.55	0.25	10.9	6.8	7.2	12.2

Client Sample ID:	UNITS	Soil Gas Screening Levels (b) (Residential Exposure)			SGMP-04I	SGMP-04S	SGMP-05I	SGMP-05S	SGMP-06I	SGMP-06S	SGMP-07I	SGMP-07S	SGMP-08D-1	SGMP-08D-2	SGMP-08I	SGMP-08S	SGMP-09D	SGMP-09I	SGMP-09S	
Lab Sample ID:					JA84264-8	JA84264-7	JA84264-10	JA84264-9	JA84264-12	JA84264-11	JA84264-14	JA84264-13	JA84264-17	JA84264-18	JA84264-16	JA84264-15	JA84264-21	JA84264-20	JA84264-19	
Date Sampled:		Shallow 5' (AF = 0.1)	Intermediate/ Deep 15' and 30' (AF = 0.01)	8/16/2011	8/16/2011	8/16/2011	8/16/2011	8/16/2011	8/16/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	
Matrix:				Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	
					Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	
					MW-26 / Pe			RFI-MW-05-08 PLUME CENTERLINE		RFI-MW-05-05 BLUEBERRY RIDGE		RFI-MW-05-06 BLUEBERRY RIDGE		NEW SGMP EAST FLANK						
GC/MS Volatiles (TO-15)																				
Chloroform	ug/m3	11	110		1.4	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	
Carbon tetrachloride	ug/m3	41	410		11	4.4	12	3.3	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	
trans-1,2-Dichloroethylene	ug/m3	630	6,300		ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	
cis-1,2-Dichloroethylene	ug/m3	630	6,300	(d)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	
Hexachloroethane	ug/m3	61	610		ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	
Tetrachloroethylene	ug/m3	41	410		123	59	613	168	2.3	1.6	5.2	2.4	1.7	1.8	2.9	0.81	16	14	5.7	
Trichloroethylene	ug/m3	100	1,000		ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	
TRACER																				
Isopropyl Alcohol	ppbv	NA	NA		5.3	7.4	3.2	24.7	3.9	0.96	33.9	17.8	75.5	120	177	131	30.7	22.7	28.3	

Notes:
AF - Attenuation Factor.
NA - Not applicable.
ND - Not detected above laboratory reporting limit (presented in parentheses).
RSL - Regional Screening Level. U.S. EPA Regional Screening Level Table (June, 2011).
U.S. EPA - United States Environmental Protection Agency.
Bold/shaded values are detected above the associated soil vapor screening level.

Yellow shading represents a shallow soil vapor sample.

Blue shading represents an intermediate soil vapor sample

Pink shading represents a deep soil vapor sample.

(a) Soil gas screening levels protective of a site-specific indoor worker scenario are equal to the U.S. EPA RSLs derived based on site-specific exposure assumptions representative of an indoor worker at the Occidental Resort (based on a 1x10-5 target risk level and target hazard quotient of 1) divided by US.E PA's default attenuation factors ((0.1 for shallow soil gas less than or equal to 5 feet in depth and 0.01 for intermediate and deep soil gas greater than 5 feet in depth).

(b) Soil gas screening levels protective of a residential scenario are equal to the US.E PA RSLs for residential air (based on a 1x10-5 target risk level and target hazard quotient of 1) divided by USEPA's default attenuation factors (0.1 for shallow soil gas less than or equal to 5 feet in depth and 0.01 for intermediate and deep soil gas greater than 5 feet in depth).

(c) Soil gas collected from SGMP-4, 5, 6, 7, 8, and 9 are compared to soil gas screening levels protective of residential exposure because these soil gas points are located in or nearby a residential area.
Soil gas collected from SGMP-1, 2, and 3 are compared to soil gas screening levels protective of a site-specific indoor worker exposure because these soil gas points are located in the vicinity of the on-site estate facilities where indoor workers are the most sensitive receptors.

(d) Value for cis-1,2-dichloroethylene is not available. Therefore, the value for trans-1,2-dichloroethylene is used due to structural similarities.

Table 2
Summary of Soil Gas Results Collected in May and August 2011
Former Occidental Chemical Facility
Montague, Michigan

Client Sample ID:	UNITS	Soil Gas Screening Levels (a)(c) (Site-specific Indoor Worker Exposure)			SGMP-01D	SGMP-01I	SGMP-01I	SGMP-01S	SGMP-01S	SGMP-02D	SGMP-02I	SGMP-02I	SGMP-02S	SGMP-02S	SGMP-03D-1	SGMP-03D-2	SGMP-03I	SGMP-03I	SGMP-03S	SGMP-03S		
Lab Sample ID:					JA76953-3	JA76953-2	JA84264-2	JA76953-1	JA84264-1	JA76953-6	JA76953-5	JA84264-4	JA76953-4	JA84264-3	JA76953-9	JA76953-10	JA76953-8	JA84264-6	JA76953-7	JA84264-5		
Date Sampled:		Shallow 5' (AF = 0.1)	Intermediate/ Deep 15' and 30' (AF = 0.01)	5/23/2011	5/23/2011	8/15/2011	5/23/2011	8/15/2011	5/23/2011	5/23/2011	8/16/2011	5/23/2011	8/16/2011	5/24/2011	5/24/2011	5/24/2011	8/16/2011	5/24/2011	8/16/2011			
Matrix:				Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas			
				Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.		
					AT NORTH END OF CONF BLDG					AT SOUTH END OF CONF BLDG					RFI-MW-05-07 PLUME CENTERLINE OXY RESORT							
GC/MS Volatiles (TO-15)															SPLIT		SPLIT					
Chloroform	ug/m3	222	2,220		ND (0.54)	ND (0.54)	1.6	2.3 J	4.3	ND (0.54)	ND (0.14)	ND (0.98)	4.5	4.9	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.98)		
Carbon tetrachloride	ug/m3	852	8,520		2090	975	2100	432	761	686	251	502	138	121	5.9	6	2.8	2.8	1.2 J	1.4		
trans-1,2-Dichloroethylene	ug/m3	11,000	110,000		ND (0.52)	ND (0.52)	ND (0.79)	ND (0.52)	ND (0.79)	ND (0.52)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)		
cis-1,2-Dichloroethylene	ug/m3	11,000	110,000	(d)	ND (0.59)	ND (0.59)	ND (0.79)	ND (0.59)	ND (0.79)	ND (0.59)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.79)		
Hexachloroethane	ug/m3	1,280	12,800		ND (0.96)	ND (0.96)	ND (1.9)	ND (0.96)	ND (1.9)	ND (0.96)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)	ND (0.25)	ND (0.25)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)		
Tetrachloroethylene	ug/m3	866	8,660		5050	2640	6980	1800	2480	3610	1700	4950	1110	1800	199	203	37	102	37	91.5		
Trichloroethylene	ug/m3	1,830	18,300		12	1.1	2.3	0.97	1.5	4.6	0.54	0.81	0.39	0.70	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.21)	ND (0.18)	1.5		
TRACER																						
Isopropyl Alcohol	ppbv	NA	NA		3.7	0.95	0.55	ND	0.25	0.89	2.1	10.9	1.2	6.8	2.6	2.9	5.1	7.2	7.7	12.2		

Client Sample ID:	UNITS	Soil Gas Screening Levels (b) (Residential Exposure)			SGMP-04D	SGMP-04I	SGMP-04I	SGMP-04S	SGMP-04S	SGMP-05D	SGMP-05I	SGMP-05I	SGMP-05S	SGMP-05S	SGMP-06D	SGMP-06I	SGMP-06I	SGMP-06S	SGMP-06S	SGMP-07D	SGMP-07I	SGMP-07I	SGMP-07S	SGMP-07S
Lab Sample ID:					JA76953-12	JA76953-11	JA84264-8	JA76953-22	JA84264-7	JA76953-15	JA76953-14	JA84264-10	JA76953-13	JA84264-9	JA76953-18	JA76953-17	JA84264-12	JA76953-16	JA84264-11	JA76953-21	JA76953-20	JA84264-14	JA76953-19	JA84264-13
Date Sampled:		Shallow 5' (AF = 0.1)	Intermediate/ Deep 15' and 30' (AF = 0.01)	5/24/2011	5/24/2011	8/16/2011	5/26/2011	8/16/2011	5/24/2011	5/24/2011	8/16/2011	5/24/2011	8/16/2011	5/24/2011	5/24/2011	8/16/2011	5/24/2011	8/16/2011	5/25/2011	5/25/2011	8/17/2011	5/25/2011	8/17/2011	
Matrix:				Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas
					Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.
					MW-26 / Pe					RFI-MW-05-08 PLUME CENTERLINE					RFI-MW-05-05 BLUEBERRY RIDGE					RFI-MW-05-06 BLUEBERRY RIDGE				
GC/MS Volatiles (TO-15)																								
Chloroform	ug/m3	11	110		15	1	1.4	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.14)	ND (0.98)	ND (0.14)	ND (0.98)
Carbon tetrachloride	ug/m3	41	410		16	9.4	11	3.7	4.4	13	7.5	12	4.5	3.3	ND (0.25)	ND (0.25)	ND (1.3)	ND (0.25)	ND (1.3)	ND (0.25)	ND (0.25)	ND (1.3)	0.94 J	ND (1.3)
trans-1,2-Dichloroethylene	ug/m3	630	6,300		ND (0.13)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.13)	ND (0.79)	ND (0.13)	ND (0.79)
cis-1,2-Dichloroethylene	ug/m3	630	6,300	(d)	ND (0.15)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.79)	ND (0.15)	ND (0.15)	ND (0.79)	0.87	ND (0.79)	ND (0.15)	ND (0.15)	ND (0.79)	0.44 J	ND (0.79)
Hexachloroethane	ug/m3	61	610		ND (0.25)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)	ND (0.25)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)	ND (0.25)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)	ND (0.25)	ND (0.25)	ND (1.9)	ND (0.25)	ND (1.9)
Tetrachloroethylene	ug/m3	41	410		166	98.3	123	29	59	669	57	613	141	168	3.6	2.6	2.3	2.9	1.6	7.5	3.1	5.2	24	2.4
Trichloroethylene	ug/m3	100	1,000		1	0.22	ND (0.21)	ND (0.18)	ND (0.21)	ND (0.18)	ND (0.18)	ND (0.21)	ND (0.18)	ND (0.21)	ND (0.18)	ND (0.18)	ND (0.21)	0.86	ND (0.21)	ND (0.18)	ND (0.18)	ND (0.21)	ND (0.18)	ND (0.21)
TRACER																								
Isopropyl Alcohol	ppbv	NA	NA		27.1	9.5	5.3	11	7.4	3.8	2.8	3.2	5.6	24.7	2.7	4.3	3.9	2.1	0.96	17.5	31.4	33.9	24.1	17.8

Table 2
Summary of Soil Gas Results Collected in May and August 2011
Former Occidental Chemical Facility
Montague, Michigan

Client Sample ID:	UNITS	Soil Gas Screening Levels (b) (Residential Exposure)			SGMP-08D-1	SGMP-08D-2	SGMP-08I	SGMP-08S	SGMP-09D	SGMP-09I	SGMP-09S
Lab Sample ID:					JA84264-17	JA84264-18	JA84264-16	JA84264-15	JA84264-21	JA84264-20	JA84264-19
Date Sampled:		Shallow 5' (AF = 0.1)	Intermediate/ Deep 15' and 30' (AF = 0.01)	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	8/17/2011	
Matrix:				Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	Soil Gas	
				Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.
					NEW SGMP EAST FLANK						
GC/MS Volatiles (TO-15)											
Chloroform	ug/m3	11	110		ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)	ND (0.98)
Carbon tetrachloride	ug/m3	41	410		ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)
trans-1,2-Dichloroethylene	ug/m3	630	6,300		ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
cis-1,2-Dichloroethylene	ug/m3	630	6,300	(d)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
Hexachloroethane	ug/m3	61	610		ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Tetrachloroethylene	ug/m3	41	410		1.7	1.8	2.9	0.81	16	14	5.7
Trichloroethylene	ug/m3	100	1,000		ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
TRACER											
Isopropyl Alcohol	ppbv	NA	NA		75.5	120	177	131	30.7	22.7	28.3

Notes:
AF - Attenuation Factor.
NA - Not applicable.
ND - Not detected above laboratory reporting limit (presented in parentheses).
RSL - Regional Screening Level. U.S. EPA Regional Screening Level Table (June, 2011).
U.S. EPA - United States Environmental Protection Agency.
Bold/shaded values are detected above the associated soil vapor screening level.

	Yellow shading represents a shallow soil vapor sample.
	Blue shading represents an intermediate soil vapor sample
	Pink shading represents a deep soil vapor sample.

- (a) Soil gas screening levels protective of a site-specific indoor worker scenario are equal to the U.S. EPA RSLs derived based on site-specific exposure assumptions representative of an indoor worker at the Occidental Resort (based on a 1x10-5 target risk level and target hazard quotient of 1) divided by US.E PA's default attenuation factors ((0.1 for shallow soil gas less than or equal to 5 feet in depth and 0.01 for intermediate and deep soil gas greater than 5 feet in depth).
- (b) Soil gas screening levels protective of a residential scenario are equal to the US.E PA RSLs for residential air (based on a 1x10-5 target risk level and target hazard quotient of 1) divided by USEPA's default attenuation factors (0.1 for shallow soil gas less than or equal to 5 feet in depth and 0.01 for intermediate and deep soil gas greater than 5 feet in depth).
- (c) Soil gas collected from SGMP-4, 5, 6, 7, 8, and 9 are compared to soil gas screening levels protective of residential exposure because these soil gas points are located in or nearby a residential area.
Soil gas collected from SGMP-1, 2, and 3 are compared to soil gas screening levels protective of a site-specific indoor worker exposure because these soil gas points are located in the vicinity of the on-site estate facilities where indoor workers are the most sensitive receptors.
- (d) Value for cis-1,2-dichloroethylene is not available. Therefore, the value for trans-1,2-dichloroethylene is used due to structural similarities.

Table 3
U.S. EPA Regional Screening Level Calculator Output - Site-Specific Resort Worker Exposure Scenario
Former Occidental Chemical Facility
Montague, Michigan

Compound	CAS #	Inhalation Unit Risk ($\mu\text{g}/\text{m}^3$) ⁻¹	Chronic RfC (mg/m^3)	Carcinogenic RSL TR=1.0E-5 ($\mu\text{g}/\text{m}^3$)	Noncarcinogenic RSL HQ=1 ($\mu\text{g}/\text{m}^3$)	Selected Indoor Air Screening Level ($\mu\text{g}/\text{m}^3$)
Carbon Tetrachloride	56-23-5	6.00E-06	1.00E-01	8.52E+01	1.83E+03	8.52E+01
Chloroform	67-66-3	2.30E-05	9.77E-02	2.22E+01	1.78E+03	2.22E+01
Dichloroethylene, 1,2-cis	156-59-2	-	-	--	-	1.10E+03 (a)
Dichloroethylene, 1,2-trans	156-60-5	-	6.00E-02	--	1.10E+03	1.10E+03
Hexachloroethane	67-72-1	4.00E-06	-	1.28E+02	-	1.28E+02
Tetrachloroethylene	127-18-4	5.90E-06	2.71E-01	8.66E+01	4.95E+03	8.66E+01
Trichloroethylene	79-01-6	2.00E-06	1.00E-02	2.56E+02	1.83E+02	1.83E+02

Site-specific Indoor Worker Equation Inputs for Ai

Variable	Value
THQ (target hazard quotient) unitless	1
AT _w (averaging time)	365
EF _w (exposure frequency) d/yr	20
ED _w (exposure duration) years	25
LT (lifetime) yr	70
ET _w (exposure time) hours	24

Notes:

CAS - Chemical Abstracts Service.

HQ - Hazard Quotient.

IUR - Inhalation unit risk.

RfC - Reference Concentration.

RSL - Regional Screening Level.

TR - Target Risk.

The above screening levels were calculated using U.S. EPA's Regional Screening Level (RSL) Calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and the semi-site-specific inputs located above. Carcinogenic screening levels were adjusted for a target risk of 1x10⁻⁵. Output generated 20JUN2011:13:58:14.

(a) The value calculated for trans-1,2-dichloroethylene was used as a surrogate for cis-1,2-dichloroethylene

Appendix A

Soil Boring & SGMP Construction Logs

SGMP-08



Client: GSH, Inc. (Occidental)
 Site: Montague, Michigan
 Date: 8/4/2011
 Weather: Upper 70's. Cloudy
 Geologist: Barry J. Harding, CPG
 Driller: Stearns Drilling, Dutton, MI
 Tom & Gary

Rig: Direct-Push 6620 DT

Depth (feet bgs)	SGMP-S	SGMP-I	SGMP-D	Lithological Description	MiniRae PID (ppm)			
1	BENTONITE	BENTONITE	BENTONITE					
2								
3								
4	SAND PACK	SAND		(3-8') Loose, fine to medium SAND, poorly graded, trace roots and gravel, dry, reddish yellow 7/6 7.5YR	0.0			
5	↓							
6								
7		SAND						
8								
9								
10		SAND PACK	SAND					
11								
12								
13								
14		↓		(13-18') Loose, fine SAND, poorly graded, trace organics, with roots, dry, very pale brown 7/3 10YR	0.0			
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25		SAND PACK						
26								
27								
28								
29			(25-30') Loose, fine-medium SAND, poorly graded, trace roots, gravel, dry, reddish yellow 7/6 7.5 YR	0.0				
30								
31								
32		↓						

↓ Soil Gas Monitoring Point

SGMP-09

AECOM

Client: GSH, Inc. (Occidental)
 Site: Montague, Michigan
 Date: 8/4/2011
 Weather: Upper 70'. Cloudy.
 Geologist: Barry J. Harding, CPG
 Driller: Stearns Drilling, Dutton, MI
 Tom & Gary

Rig: Direct-Push 6620 DT

Depth (feet bgs)	SGMP-S	SGMP-I	SGMP-D	Lithological Description	MiniRae PID (ppm)
1	BENTONITE	BENTONITE	BENTONITE		
2					
3					
4	SAND PACK	SAND		(3-8') Loose, fine to medium grain SAND, poorly graded, trace gravel, dry, reddish yellow 7/6 7.5YR.	0.0
5	↓				
6					
7					
8					
9					
10		SAND PACK			
11					
12					
13					
14					
15		↓			
16					
17					
18					
19					
20					
21					
22					
23					
24					
25	SAND PACK				
26					
27					
28					
29		(25-30') Loose, fine SAND, poorly graded, dry, very pale brown 7/3 10YR	0.0		
30					
31					
32					

↓ Soil Gas Monitoring Point

Appendix B

Laboratory Analytical Report



09/01/11

Technical Report for

Conestoga-Rovers & Associates

Montague, Montague, MI

SSOW# 261-402-D02-3100 PROJ# 9970

Accutest Job Number: JA84264

Sampling Dates: 08/15/11 - 08/17/11

Report to:


Conestoga-Rovers & Associates
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304
p McMahan@craworld.com

ATTN: Paul McMahon

Total number of pages in report: **64**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.


David N. Speis
VP, Laboratory Director

Client Service contact: Matt Cordova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Conestoga-Rovers & Associates

Job No: JA84264

Montague, Montague, MI

Project No: SSOW# 261-402-D02-3100 PROJ# 9970

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JA84264-1	08/15/11	16:38 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-01S
JA84264-2	08/15/11	17:00 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-01I
JA84264-3	08/16/11	09:40 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-02S
JA84264-4	08/16/11	09:55 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-02I
JA84264-5	08/16/11	11:13 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-03S
JA84264-6	08/16/11	11:25 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-03I
JA84264-7	08/16/11	13:46 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-04S
JA84264-8	08/16/11	14:02 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-04I
JA84264-9	08/16/11	15:15 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-05S
JA84264-10	08/16/11	15:31 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-05I
JA84264-11	08/16/11	16:44 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-06S
JA84264-12	08/16/11	17:00 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-06I
JA84264-13	08/17/11	10:00 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-07S

Sample Summary

(continued)

Conestoga-Rovers & Associates

Job No: JA84264

Montague, Montague, MI

Project No: SSOW# 261-402-D02-3100 PROJ# 9970

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JA84264-14	08/17/11	10:16 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-07I
JA84264-15	08/17/11	12:13 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-08S
JA84264-16	08/17/11	12:30 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-08I
JA84264-17	08/17/11	12:45 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-08D-1
JA84264-18	08/17/11	12:45 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-08D-2
JA84264-19	08/17/11	16:38 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-09S
JA84264-20	08/17/11	16:54 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-09I
JA84264-21	08/17/11	17:10 MP	08/20/11	AIR	Soil Vapor Comp.	SGMP-09D



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Conestoga-Rovers & Associates

Job No JA84264

Site: Montague, Montague, MI

Report Date 9/1/2011 4:16:22 PM

On 08/20/2011, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories. Samples were intact and properly preserved, unless noted below. An Accutest Job Number of JA84264 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method TO-15

Matrix: AIR

Batch ID: V2W1362

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA84264-5DUP were used as the QC samples indicated.
- Blank Spike Recovery(s) for Hexachloroethane are outside control limits.
- RPD(s) for Duplicate for Isopropyl Alcohol, Trichloroethylene are outside control limits for sample JA84264-5DUP. Outside control limits.

Matrix: AIR

Batch ID: V2W1363

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA84314-3DUP were used as the QC samples indicated.
- Sample(s) JA84264-15, JA84264-16, JA84264-17, JA84264-18 have compounds reported with "E" qualifiers indicating estimated value exceeding calibration range.
- Blank Spike Recovery(s) for Hexachloroethane are outside control limits.

Matrix: AIR

Batch ID: V3W935

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA84264-1DUP were used as the QC samples indicated.
- Blank Spike Recovery(s) for Hexachloroethane are outside control limits.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SGMP-01S		
Lab Sample ID:	JA84264-1	Date Sampled:	08/15/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A664	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23663.D	1	08/23/11	YXC	n/a	n/a	V3W935
Run #2	3W23665.D	1	08/23/11	YXC	n/a	n/a	V3W935

	Initial Volume
Run #1	400 ml
Run #2	40.0 ml

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	0.88	0.20	0.028	ppbv		4.3	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	121 ^a	2.0	0.40	ppbv		761 ^a	13	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.25	0.20	0.059	ppbv		0.61	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	365 ^a	0.40	0.28	ppbv		2480 ^a	2.7	ug/m3
79-01-6	131.4	Trichloroethylene	0.27	0.040	0.033	ppbv		1.5	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	90%	87%	65-128%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-011		
Lab Sample ID:	JA84264-2	Date Sampled:	08/15/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A826468
Method:	TO-15	Date Received:	08/20/11
Project:	Montague, Montague, MI	Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23666.D	1	08/23/11	YXC	n/a	n/a	V3W935
Run #2	2W32345.D	30.6	08/25/11	YMH	n/a	n/a	V2W1362

	Initial Volume
Run #1	400 ml
Run #2	200 ml

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	0.33	0.20	0.028	ppbv		1.6	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	334 ^a	12	2.4	ppbv		2100 ^a	75	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.55	0.20	0.059	ppbv		1.4	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	1030 ^a	2.4	1.7	ppbv		6980 ^a	16	ug/m3
79-01-6	131.4	Trichloroethylene	0.43	0.040	0.033	ppbv		2.3	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	88%	75%	65-128%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-02S		
Lab Sample ID:	JA84264-3	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A772	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23668.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2	3W23669.D	1	08/24/11	YXC	n/a	n/a	V3W935

	Initial Volume
Run #1	400 ml
Run #2	40.0 ml

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	1.0	0.20	0.028	ppbv		4.9	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	19.2	0.20	0.040	ppbv		121	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	6.8	0.20	0.059	ppbv		17	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	265 ^a	0.40	0.28	ppbv		1800 ^a	2.7	ug/m3
79-01-6	131.4	Trichloroethylene	0.13	0.040	0.033	ppbv		0.70	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	85%	86%	65-128%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-02I		
Lab Sample ID:	JA84264-4	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A304	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23670.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2	2W32346.D	26.6	08/25/11	YMH	n/a	n/a	V2W1362

	Initial Volume
Run #1	400 ml
Run #2	200 ml

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	79.8 ^a	11	2.1	ppbv		502 ^a	69	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	10.9	0.20	0.059	ppbv		26.8	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	730 ^a	2.1	1.5	ppbv		4950 ^a	14	ug/m3
79-01-6	131.4	Trichloroethylene	0.15	0.040	0.033	ppbv		0.81	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	87%	73%	65-128%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-03S		
Lab Sample ID:	JA84264-5	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A279
Method:	TO-15	Date Received:	08/20/11
Project:	Montague, Montague, MI	Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32347.D	1	08/25/11	YMH	n/a	n/a	V2W1362
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.23	0.20	0.040	ppbv		1.4	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	12.2	0.20	0.059	ppbv		30.0	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	13.5	0.040	0.028	ppbv		91.5	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	0.27	0.040	0.033	ppbv		1.5	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	81%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-03I		
Lab Sample ID:	JA84264-6	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A745	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23672.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.44	0.20	0.040	ppbv		2.8	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	7.2	0.20	0.059	ppbv		18	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	15.1	0.040	0.028	ppbv		102	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	91%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-04S		
Lab Sample ID:	JA84264-7	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A822	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23673.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.70	0.20	0.040	ppbv		4.4	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	7.4	0.20	0.059	ppbv		18	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	8.7	0.040	0.028	ppbv		59	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	90%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-04I		
Lab Sample ID:	JA84264-8	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A67	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23674.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	0.29	0.20	0.028	ppbv		1.4	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	1.7	0.20	0.040	ppbv		11	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	5.3	0.20	0.059	ppbv		13	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	18.1	0.040	0.028	ppbv		123	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	91%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-05S		
Lab Sample ID:	JA84264-9	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A10	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W23675.D	1	08/24/11	YXC	n/a	n/a	V3W935
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.52	0.20	0.040	ppbv		3.3	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	24.7	0.20	0.059	ppbv		60.7	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	24.8	0.040	0.028	ppbv		168	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	89%		65-128%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-05I		
Lab Sample ID:	JA84264-10	Date Sampled:	08/16/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A820
Method:	TO-15	Date Received:	08/20/11
Project:	Montague, Montague, MI	Percent Solids:	n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32348.D	1	08/25/11	YMH	n/a	n/a	V2W1362
Run #2	2W32367.D	1	08/25/11	YMH	n/a	n/a	V2W1363

	Initial Volume
Run #1	400 ml
Run #2	100 ml

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	1.9	0.20	0.040	ppbv		12	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	3.2	0.20	0.059	ppbv		7.9	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	90.4 ^a	0.16	0.11	ppbv		613 ^a	1.1	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	78%	75%	65-128%

(a) Result is from Run# 2

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-06S		Date Sampled:	08/16/11	
Lab Sample ID:	JA84264-11		Date Received:	08/20/11	
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A278	Percent Solids:	n/a
Method:	TO-15				
Project:	Montague, Montague, MI				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32349.D	1	08/25/11	YMH	n/a	n/a	V2W1362
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.96	0.20	0.059	ppbv		2.4	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.23	0.040	0.028	ppbv		1.6	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%		65-128%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-06I						
Lab Sample ID:	JA84264-12				Date Sampled:	08/16/11	
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A218	Date Received:	08/20/11		
Method:	TO-15			Percent Solids:	n/a		
Project:	Montague, Montague, MI						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32350.D	1	08/25/11	YMH	n/a	n/a	V2W1362
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	3.9	0.20	0.059	ppbv		9.6	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.34	0.040	0.028	ppbv		2.3	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	86%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-07S		
Lab Sample ID:	JA84264-13	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A828	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32368.D	1	08/25/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	17.8	0.20	0.059	ppbv		43.8	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.36	0.040	0.028	ppbv		2.4	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	73%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-07I		
Lab Sample ID:	JA84264-14	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A636	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32369.D	1	08/25/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	33.9	0.20	0.059	ppbv		83.3	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.77	0.040	0.028	ppbv		5.2	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	79%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-08S		
Lab Sample ID:	JA84264-15	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A840	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32370.D	1	08/25/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	131	0.20	0.059	ppbv	E	322	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.12	0.040	0.028	ppbv		0.81	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	78%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-08I						
Lab Sample ID:	JA84264-16				Date Sampled:	08/17/11	
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A472	Date Received:	08/20/11		
Method:	TO-15			Percent Solids:	n/a		
Project:	Montague, Montague, MI						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32371.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	177	0.20	0.059	ppbv	E	435	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.43	0.040	0.028	ppbv		2.9	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	89%		65-128%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-08D-1		
Lab Sample ID:	JA84264-17	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A85	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32372.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	75.5	0.20	0.059	ppbv	E	186	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.25	0.040	0.028	ppbv		1.7	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	84%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-08D-2		Date Sampled:	08/17/11	
Lab Sample ID:	JA84264-18		Date Received:	08/20/11	
Matrix:	AIR - Soil Vapor Comp.	Summa ID:	A653		
Method:	TO-15		Percent Solids:	n/a	
Project:	Montague, Montague, MI				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32373.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	120	0.20	0.059	ppbv	E	295	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.26	0.040	0.028	ppbv		1.8	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	80%		65-128%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-09S		
Lab Sample ID:	JA84264-19	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A302	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32374.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	28.3	0.20	0.059	ppbv		69.6	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.84	0.040	0.028	ppbv		5.7	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	89%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-09I		
Lab Sample ID:	JA84264-20	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A01	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32375.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	22.7	0.20	0.059	ppbv		55.8	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	2.1	0.040	0.028	ppbv		14	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	87%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SGMP-09D		
Lab Sample ID:	JA84264-21	Date Sampled:	08/17/11
Matrix:	AIR - Soil Vapor Comp.	Summa ID: A366	Date Received: 08/20/11
Method:	TO-15	Percent Solids:	n/a
Project:	Montague, Montague, MI		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2W32376.D	1	08/26/11	YMH	n/a	n/a	V2W1363
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA Special List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	119.4	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	234	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	60.1	Isopropyl Alcohol	30.7	0.20	0.059	ppbv		75.5	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	2.3	0.040	0.028	ppbv		16	0.27	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	87%		65-128%

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Summa Canister and Flow Controller Log
- Sample Tracking Chronicle

CHAIN OF CUSTODY

Air Sampling Field Data Sheet

2235 US Highway 130, Dayton, NJ 08810
Tel: 732.329.0200 Fax: 732.329.3499

FED-EX Tracking #	Bottle Order Control #
Lab Quote #	Lab Job #

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Company Name AECOM		Client / Reporting Information GSA Montague		Weather Parameters		Requested Analysis											
Address 5555 Glenwood Hills Pkwy SE, Suite 200		Street 7601 Old Channel Trail		Temperature (Fahrenheit)		<div style="writing-mode: vertical-rl; transform: rotate(180deg);"> * TO-15 TPA </div>											
City Grand Rapids MI		City Montague MI		Start: _____ Maximum: _____													
State MI		State MI		Stop: _____ Minimum: _____													
Project Contact Barry Harding@aecom.com		Project # 60215783		Atmospheric Pressure (inches of Hg)													
Phone # 616-940-4265		Client Purchase Order #		Start: _____ Maximum: _____													
Fax #				Stop: _____ Minimum: _____													
Sampler(s) Name(s) Michael J. PAPP				Other weather comment:													
Lab Sample #	Field ID / Point of Collection	Air Type	Sampling Equipment Info	Start Sampling Information					Stop Sampling Information								
		Indoor (I) Soil Vap (SV) Ambient (A)	Canister Serial #	Canister Size 6L or 1L	Flow Controller Serial #	Date	Time (24 hr clock)	Canister Pressure (in Hg)	Interior Temp (F)	Sampler Init.	Date	Time (24 hr clock)	Canister Pressure (in Hg)	Interior Temp (F)	Sampler Init.		
- 11	SGMP-06S	SV	A278	6L	FC509	8/16	1604	28	81.9	MJP	8/16	1644	6	78.6	MJP	X	X
- 12	SGMP-06I		A218	1	FC069	↓	1620	27.5	81.1		↓	1700	5.5	77		X	X
- 13	SGMP-07S		A828	1	FC384	8/17	0920	29	69.6		8/17	1000	6	70.7		X	X
- 14	SGMP-07I		A636	1	FC365		0926	28.5	69.3			1016	6	71.6		X	X
- 15	SGMP-08S		A840	1	FC419		1133	28	79			1213	5	75.9		X	X
- 16	SGMP-08I		A472	1	FC083		1149	28	80.4			1230	4	76.3		X	X
- 17	SGMP-08D-1		A857	1	FC084		1205	26	75.9			1245	4	77.5		X	X
- 18	SGMP-08D-2		A653	1	FC585		1205	30	75.9			1245	7	77.5		X	X
- 19	SGMP-09S		A302	1	FC282		1558	28	80.1			1638	4.5	79.3		X	X
- 20	SGMP-09I	SV	A017	1	FC099	✓	1614	28.5	79.7	✓	✓	1654	5	77.5	✓	X	X
Turnaround Time (Business Days)						Data Deliverable Information					Comments / Remarks						
Standard - 15 Days						All NJDEP TO-15 is mandatory Full T1					* Carbon tetrachloride Chloroform cis-1,2-DCE trans-1,2-DCE PCE TCE Hexachloroethane						
10 Day						Comm A											
5 Day						Comm B											
3 Day						Reduced T2											
2 Day						Full T1											
1 Day						Other:											
Other																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by: Gray Maurer		Date/Time: 7/28/11		Received by: Fed Ex		Relinquished by: Fed Ex		Date/Time: 8/20/11 0930		Received by: M. J. Papp							
Relinquished by: M. J. Papp		Date/Time: 8/24/11 1301		Received by:		Relinquished by:		Date/Time:		Received by:							
Relinquished by:		Date/Time:		Received by:		Relinquished by:		Date/Time:		Received by:							
Relinquished by:		Date/Time:		Received by:		Relinquished by:		Date/Time:		Received by:							
Relinquished by:		Date/Time:		Received by:		Relinquished by:		Date/Time:		Received by:							

JA84264: Chain of Custody

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Air Sampling Field Data Sheet

FED-EX Tracking #	Boiler Order Control # MC-7/11/2011-9
Lab Quote #	Lab Job # JA84784

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[illegible]

4.1

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Job# JA84264
(REQUIRED)

Unused Summa Return Form

Client ARZOM Office M
Project GSH

#Summas 7 #Flow Controllers 7

Summa#'s	A 216	-27	FC 179
	A 374	-23	FC 361
	A 778	-24	FC 098
	A 850	-25	FC 519
	A 986	-26	FC 053
	A 988	-27	FC 142
	A 1000	-28	FC 328

Rec'd By M. Jones Rec'd Date/Time 1/24/11 0930

Rec'd via Fed X
(Attach any client paperwork, documentation, or airbills if available)

Notes

AS

Accutest Laboratories Sample Receipt Summary

Accutest Job Number JA84264

Client:

Date / Time Received: 8/20/2011

Project:

No. Coolers: 0

Airbill #'s:

Delivery Method:

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp. criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | | |
| 3. Cooler media: | | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | | Intact |

Sample Integrity - Instructions

Y or N N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Comments

Summa Canister and Flow Controller Log

Page 1 of 2

Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI
Received: 08/20/11

SUMMA CANISTERS												
Shipping							Receiving					
Summa ID	Vac L	Date " Hg Out	By	SCC Batch	SCC FileID	Sample Number	Date In	By	Vac " Hg	Pres psig	Final psig	Dil Fact
A664	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-1	08/22/11	FZ	5		1
A826	6	29.4	07/26/11	FZ	CP4905	W32742.D	JA84264-2	08/22/11	FZ	5		1
A772	6	29.4	07/26/11	FZ	CP4905	W32742.D	JA84264-3	08/22/11	FZ	4.5		1
A304	6	29.4	07/26/11	FZ	CP4905	W32742.D	JA84264-4	08/22/11	FZ	4.5		1
A279	6	29.4	07/26/11	FZ	CP4902	W32725.D	JA84264-5	08/22/11	FZ	2		1
A745	6	29.4	07/26/11	FZ	CP4902	W32725.D	JA84264-6	08/22/11	FZ	4		1
A822	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-7	08/22/11	FZ	6		1
A671	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-8	08/22/11	FZ	5		1
A1012	6	29.4	07/26/11	FZ	CP4902	W32725.D	JA84264-9	08/22/11	FZ	3		1
A820	6	29.4	07/26/11	FZ	CP4905	W32742.D	JA84264-10	08/22/11	FZ	6.5		1
A278	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-11	08/22/11	FZ	5.5		1
A218	6	29.4	07/26/11	FZ	CP4909	W32779.D	JA84264-12	08/22/11	FZ	5.5		1
A828	6	29.4	07/26/11	FZ	CP4902	W32725.D	JA84264-13	08/22/11	FZ	6		1
A636	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-14	08/22/11	FZ	5		1
A840	6	29.4	07/26/11	FZ	CP4909	W32779.D	JA84264-15	08/22/11	FZ	5		1
A472	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-16	08/22/11	FZ	4.5		1
A857	6	29.4	07/26/11	FZ	CP4905	W32742.D	JA84264-17	08/22/11	FZ	6		1
A653	6	29.4	07/26/11	FZ	CP4903	W32752.D	JA84264-18	08/22/11	FZ	5		1
A302	6	29.4	07/26/11	FZ	CP4909	W32779.D	JA84264-19	08/22/11	FZ	5.5		1
A017	6	29.4	07/26/11	FZ	CP4909	W32779.D	JA84264-20	08/22/11	FZ	5		1
A366	6	29.4	07/26/11	FZ	CP4909	W32779.D	JA84264-21	08/22/11	FZ	5		1

FLOW CONTROLLERS								
Shipping					Receiving			
Flow Crtl ID	Date Out	By	cc/ min	Time hrs.	Date In	By	cc/ min	
FC053	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC054	07/26/11	FZ	125	.67	08/22/11	FZ	126	
FC063	07/26/11	FZ	125	.67	08/22/11	FZ	127	
FC083	07/26/11	FZ	125	.67	08/22/11	FZ	127	
FC085	07/26/11	FZ	125	.67	08/22/11	FZ	126	
FC098	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC099	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC106	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC142	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC160	07/26/11	FZ	125	.67	08/22/11	FZ	127	
FC166	07/26/11	FZ	125	.67	08/22/11	FZ	124	
FC179	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC180	07/26/11	FZ	125	.67	08/22/11	FZ	125	
FC262	07/26/11	FZ	125	.67	08/22/11	FZ	125	

Summa Canister and Flow Controller Log

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI
Received: 08/20/11

FLOW CONTROLLERS

Shipping					Receiving		
Flow Crtl ID	Date Out	By	cc/min	Time hrs.	Date In	By	cc/min
FC280	07/26/11	FZ	125	.67	08/22/11	FZ	127
FC282	07/26/11	FZ	125	.67	08/22/11	FZ	123
FC328	07/26/11	FZ	125	.67	08/22/11	FZ	125
FC361	07/26/11	FZ	125	.67	08/22/11	FZ	125
FC365	07/26/11	FZ	125	.67	08/22/11	FZ	124
FC381	07/26/11	FZ	125	.67	08/22/11	FZ	126
FC415	07/26/11	FZ	125	.67	08/22/11	FZ	124
FC485	07/26/11	FZ	125	.67	08/22/11	FZ	126
FC509	07/26/11	FZ	125	.67	08/22/11	FZ	126
FC519	07/26/11	FZ	125	.67	08/22/11	FZ	126
FC522	07/26/11	FZ	125	.67	08/22/11	FZ	126
FC535	07/26/11	FZ	125	.67	08/22/11	FZ	124
FC538	07/26/11	FZ	125	.67	08/22/11	FZ	127

Accutest Bottle Order(s):

MC-7/11/2011-9

Prep Date	Room Temp(F)	Bar Pres "Hg
07/26/11	70	29.92

Internal Sample Tracking Chronicle

Conestoga-Rovers & Associates

Job No: JA84264

Montague, Montague, MI

Project No: SSOW# 261-402-D02-3100 PROJ# 9970

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JA84264-1 SGMP-01S	Collected: 15-AUG-11 16:38	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-1	TO-15	23-AUG-11 21:16	YXC			VTO15SL
JA84264-1	TO-15	23-AUG-11 22:37	YXC			VTO15SL
JA84264-2 SGMP-01I	Collected: 15-AUG-11 17:00	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-2	TO-15	23-AUG-11 23:19	YXC			VTO15SL
JA84264-2	TO-15	25-AUG-11 01:30	YMH			VTO15SL
JA84264-3 SGMP-02S	Collected: 16-AUG-11 09:40	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-3	TO-15	24-AUG-11 00:41	YXC			VTO15SL
JA84264-3	TO-15	24-AUG-11 01:20	YXC			VTO15SL
JA84264-4 SGMP-02I	Collected: 16-AUG-11 09:55	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-4	TO-15	24-AUG-11 02:02	YXC			VTO15SL
JA84264-4	TO-15	25-AUG-11 02:08	YMH			VTO15SL
JA84264-5 SGMP-03S	Collected: 16-AUG-11 11:13	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-5	TO-15	25-AUG-11 02:50	YMH			VTO15SL
JA84264-6 SGMP-03I	Collected: 16-AUG-11 11:25	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-6	TO-15	24-AUG-11 04:05	YXC			VTO15SL
JA84264-7 SGMP-04S	Collected: 16-AUG-11 13:46	By: MP	Received: 20-AUG-11	By: MPC		
JA84264-7	TO-15	24-AUG-11 04:47	YXC			VTO15SL

Internal Sample Tracking Chronicle

Conestoga-Rovers & Associates

Job No: JA84264

Montague, Montague, MI

Project No: SSOW# 261-402-D02-3100 PROJ# 9970

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JA84264-8	Collected: 16-AUG-11 14:02	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-04I						
JA84264-8	TO-15	24-AUG-11 05:29	YXC			VTO15SL
JA84264-9	Collected: 16-AUG-11 15:15	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-05S						
JA84264-9	TO-15	24-AUG-11 06:11	YXC			VTO15SL
JA84264-10	Collected: 16-AUG-11 15:31	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-05I						
JA84264-10	TO-15	25-AUG-11 03:31	YMH			VTO15SL
JA84264-10	TO-15	25-AUG-11 21:41	YMH			VTO15SL
JA84264-11	Collected: 16-AUG-11 16:44	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-06S						
JA84264-11	TO-15	25-AUG-11 04:13	YMH			VTO15SL
JA84264-12	Collected: 16-AUG-11 17:00	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-06I						
JA84264-12	TO-15	25-AUG-11 05:33	YMH			VTO15SL
JA84264-13	Collected: 17-AUG-11 10:00	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-07S						
JA84264-13	TO-15	25-AUG-11 22:23	YMH			VTO15SL
JA84264-14	Collected: 17-AUG-11 10:16	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-07I						
JA84264-14	TO-15	25-AUG-11 23:04	YMH			VTO15SL
JA84264-15	Collected: 17-AUG-11 12:13	By: MP	Received: 20-AUG-11	By: MPC		
SGMP-08S						

Internal Sample Tracking Chronicle

Conestoga-Rovers & Associates

Job No: JA84264

Montague, Montague, MI

Project No: SSOW# 261-402-D02-3100 PROJ# 9970

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JA84264-15	TO-15	25-AUG-11 23:46	YMH			VTO15SL
JA84264-16 Collected: 17-AUG-11 12:30 By: MP Received: 20-AUG-11 By: MPC SGMP-08I						
JA84264-16	TO-15	26-AUG-11 01:06	YMH			VTO15SL
JA84264-17 Collected: 17-AUG-11 12:45 By: MP Received: 20-AUG-11 By: MPC SGMP-08D-1						
JA84264-17	TO-15	26-AUG-11 01:48	YMH			VTO15SL
JA84264-18 Collected: 17-AUG-11 12:45 By: MP Received: 20-AUG-11 By: MPC SGMP-08D-2						
JA84264-18	TO-15	26-AUG-11 02:29	YMH			VTO15SL
JA84264-19 Collected: 17-AUG-11 16:38 By: MP Received: 20-AUG-11 By: MPC SGMP-09S						
JA84264-19	TO-15	26-AUG-11 03:11	YMH			VTO15SL
JA84264-20 Collected: 17-AUG-11 16:54 By: MP Received: 20-AUG-11 By: MPC SGMP-09I						
JA84264-20	TO-15	26-AUG-11 03:52	YMH			VTO15SL
JA84264-21 Collected: 17-AUG-11 17:10 By: MP Received: 20-AUG-11 By: MPC SGMP-09D						
JA84264-21	TO-15	26-AUG-11 05:13	YMH			VTO15SL

GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Page 1 of 1

Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3W935-MB	3W23653.D	1	08/23/11	YXC	n/a	n/a	V3W935

The QC reported here applies to the following samples:

Method: TO-15

JA84264-1, JA84264-2, JA84264-3, JA84264-4, JA84264-6, JA84264-7, JA84264-8, JA84264-9

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	93% 65-128%

Method Blank Summary

Page 1 of 1

Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2W1362-MB	2W32333.D	1	08/24/11	YMH	n/a	n/a	V2W1362

The QC reported here applies to the following samples:

Method: TO-15

JA84264-2, JA84264-4, JA84264-5, JA84264-10, JA84264-11, JA84264-12

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	79% 65-128%

Method Blank Summary

Page 1 of 1

Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2W1362-MB	2W32355.D	1	08/25/11	YMH	n/a	n/a	V2W1362

The QC reported here applies to the following samples:

Method: TO-15

JA84264-2, JA84264-4, JA84264-5, JA84264-10, JA84264-11, JA84264-12

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	79% 65-128%

Method Blank Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2W1363-MB	2W32357.D	1	08/25/11	YMH	n/a	n/a	V2W1363

The QC reported here applies to the following samples:

Method: TO-15

JA84264-10, JA84264-13, JA84264-14, JA84264-15, JA84264-16, JA84264-17, JA84264-18, JA84264-19, JA84264-20, JA84264-21

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	77% 65-128%

Method Blank Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1338-MB	W32720.D	1	07/15/11	YMH	n/a	n/a	VW1338

The QC reported here applies to the following samples:

Method: TO-15

VW1338-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	88% 65-128%

Method Blank Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1339-MB	W32747.D	1	07/18/11	YMH	n/a	n/a	VW1339

The QC reported here applies to the following samples:

Method: TO-15

VW1339-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	88% 65-128%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile ^a		0	ppbv	

(a) Isobutylene mass spectra is not detected in this chromatographic run.

Method Blank Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1340-MB	W32775.D	1	07/19/11	YMH	n/a	n/a	VW1340

The QC reported here applies to the following samples:

Method: TO-15

VW1340-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	89% 65-128%

Method Blank Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3W934-MB	3W23625.D	1	08/19/11	YXC	n/a	n/a	V3W934

The QC reported here applies to the following samples:

Method: TO-15

V3W934-SCC

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	91% 65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264**Account:** CRANYNF Conestoga-Rovers & Associates**Project:** Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3W935-BS	3W23651.D	1	08/23/11	YXC	n/a	n/a	V3W935
V3W935-BSD	3W23652.D	1	08/23/11	YXC	n/a	n/a	V3W935

The QC reported here applies to the following samples:**Method:** TO-15

JA84264-1, JA84264-2, JA84264-3, JA84264-4, JA84264-6, JA84264-7, JA84264-8, JA84264-9

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	10.6	106	10.0	100	6	70-130/30
56-23-5	Carbon tetrachloride	10	10.0	100	9.4	94	6	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10.4	104	9.6	96	8	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	10.2	102	9.4	94	8	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	11.1	111	10.2	102	8	70-130/30
127-18-4	Tetrachloroethylene	10	9.1	91	8.3	83	9	70-130/30
79-01-6	Trichloroethylene	10	9.8	98	8.9	89	10	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	98%	99%	65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2W1362-BS	2W32331.D	1	08/24/11	YMH	n/a	n/a	V2W1362
V2W1362-BSD	2W32332.D	1	08/24/11	YMH	n/a	n/a	V2W1362

The QC reported here applies to the following samples:

Method: TO-15

JA84264-2, JA84264-4, JA84264-5, JA84264-10, JA84264-11, JA84264-12

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	10.9	109	11.2	112	3	70-130/30
56-23-5	Carbon tetrachloride	10	10.9	109	11.3	113	4	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10.1	101	10.5	105	4	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.9	99	10.2	102	3	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	11.1	111	11.5	115	4	70-130/30
127-18-4	Tetrachloroethylene	10	10.2	102	10.5	105	3	70-130/30
79-01-6	Trichloroethylene	10	10.2	102	10.5	105	3	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	89%	91%	65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264**Account:** CRANYNF Conestoga-Rovers & Associates**Project:** Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V2W1363-BS	2W32353.D	1	08/25/11	YMH	n/a	n/a	V2W1363
V2W1363-BSD	2W32354.D	1	08/25/11	YMH	n/a	n/a	V2W1363

The QC reported here applies to the following samples:**Method:** TO-15

JA84264-10, JA84264-13, JA84264-14, JA84264-15, JA84264-16, JA84264-17, JA84264-18, JA84264-19, JA84264-20, JA84264-21

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	10.8	108	11.7	117	8	70-130/30
56-23-5	Carbon tetrachloride	10	10.7	107	11.9	119	11	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10	100	11.1	111	10	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.9	99	10.8	108	9	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	10.9	109	12.1	121	10	70-130/30
127-18-4	Tetrachloroethylene	10	9.9	99	11.1	111	11	70-130/30
79-01-6	Trichloroethylene	10	9.9	99	11.1	111	11	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	88%	91%	65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1338-BS	W32718.D	1	07/15/11	YMH	n/a	n/a	VW1338
VW1338-BSD	W32719.D	1	07/15/11	YMH	n/a	n/a	VW1338

The QC reported here applies to the following samples:

Method: TO-15

VW1338-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	9.6	96	10.2	102	6	70-130/30
56-23-5	Carbon tetrachloride	10	8.8	88	9.4	94	7	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10.4	104	11.0	110	6	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.7	97	10.3	103	6	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	10	100	10.6	106	6	70-130/30
127-18-4	Tetrachloroethylene	10	10.4	104	11.0	110	6	70-130/30
79-01-6	Trichloroethylene	10	10.2	102	11.0	110	8	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	99%	97%	65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1339-BS	W32745.D	1	07/18/11	YMH	n/a	n/a	VW1339
VW1339-BSD	W32746.D	1	07/18/11	YMH	n/a	n/a	VW1339

The QC reported here applies to the following samples:

Method: TO-15

VW1339-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	10	100	9.4	94	6	70-130/30
56-23-5	Carbon tetrachloride	10	9.2	92	8.7	87	6	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10.5	105	10.0	100	5	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.9	99	9.4	94	5	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	10.1	101	9.4	94	7	70-130/30
127-18-4	Tetrachloroethylene	10	10.5	105	10.3	103	2	70-130/30
79-01-6	Trichloroethylene	10	10.5	105	9.9	99	6	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	96%	96%	65-128%

Blank Spike/Blank Spike Duplicate Summary

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Job Number: JA84264

Account: CRANYNF Conestoga-Rovers & Associates

Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1340-BS	W32773.D	1	07/19/11	YMH	n/a	n/a	VW1340
VW1340-BSD	W32774.D	1	07/19/11	YMH	n/a	n/a	VW1340

The QC reported here applies to the following samples:

Method: TO-15

VW1340-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
67-66-3	Chloroform	10	9.8	98	9.5	95	3	70-130/30
56-23-5	Carbon tetrachloride	10	9.0	90	8.8	88	2	70-130/30
156-60-5	trans-1,2-Dichloroethylene	10	10.4	104	10.1	101	3	70-130/30
156-59-2	cis-1,2-Dichloroethylene	10	9.7	97	9.4	94	3	70-130/30
67-72-1	Hexachloroethane	10	ND	0*	ND	0*	nc	70-130/30
67-63-0	Isopropyl Alcohol	10	9.8	98	9.4	94	4	70-130/30
127-18-4	Tetrachloroethylene	10	10.6	106	10.4	104	2	70-130/30
79-01-6	Trichloroethylene	10	10.5	105	10.2	102	3	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	95%	96%	65-128%

Blank Spike/Blank Spike Duplicate Summary

Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3W934-BS	3W23623.D	1	08/19/11	YXC	n/a	n/a	V3W934
V3W934-BSD	3W23624.D	1	08/19/11	YXC	n/a	n/a	V3W934

The QC reported here applies to the following samples: Method: TO-15

V3W934-SCC

CAS No.	Compound	Spike ppbv	BSP ppbv	BSP %	BSD ppbv	BSD %	RPD	Limits Rec/RPD
56-23-5	Carbon tetrachloride	10	9.0	90	8.7	87	3	70-130/30
127-18-4	Tetrachloroethylene	10	7.9	79	7.7	77	3	70-130/30

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	98%	100%	65-128%

Duplicate Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA84264-1DUP	3W23664.D	1	08/23/11	YXC	n/a	n/a	V3W935
JA84264-1	3W23663.D	1	08/23/11	YXC	n/a	n/a	V3W935
JA84264-1	3W23665.D	1	08/23/11	YXC	n/a	n/a	V3W935

The QC reported here applies to the following samples:

Method: TO-15

JA84264-1, JA84264-2, JA84264-3, JA84264-4, JA84264-6, JA84264-7, JA84264-8, JA84264-9

CAS No.	Compound	JA84264-1 ppbv	DUP Q	ppbv	Q	RPD	Limits
67-66-3	Chloroform	0.88		0.88		0	12
56-23-5	Carbon tetrachloride	121 ^a		116	E	4	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10
67-72-1	Hexachloroethane	ND		ND		nc	20
67-63-0	Isopropyl Alcohol	0.25		0.27		8	26
127-18-4	Tetrachloroethylene	365 ^a		333	E	9	17
79-01-6	Trichloroethylene	0.27		0.28		4	13

CAS No.	Surrogate Recoveries	DUP	JA84264-1	JA84264-1	Limits
460-00-4	4-Bromofluorobenzene	88%	90%	87%	65-128%

(a) Result is from Run #2.

Duplicate Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA84264-5DUP	2W32356.D	1	08/25/11	YMH	n/a	n/a	V2W1362
JA84264-5	2W32347.D	1	08/25/11	YMH	n/a	n/a	V2W1362

The QC reported here applies to the following samples:

Method: TO-15

JA84264-2, JA84264-4, JA84264-5, JA84264-10, JA84264-11, JA84264-12

CAS No.	Compound	JA84264-5 ppbv	DUP Q	ppbv	Q	RPD	Limits
67-66-3	Chloroform	ND		ND		nc	12
56-23-5	Carbon tetrachloride	0.23		0.22		4	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10
67-72-1	Hexachloroethane	ND		ND		nc	20
67-63-0	Isopropyl Alcohol	12.2		8.7		33* a	26
127-18-4	Tetrachloroethylene	13.5		11.9		13	17
79-01-6	Trichloroethylene	0.27		0.23		16* a	13

CAS No.	Surrogate Recoveries	DUP	JA84264-5	Limits
460-00-4	4-Bromofluorobenzene	82%	81%	65-128%

(a) Outside control limits.

Duplicate Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JA84314-3DUP	2W32364.D	1	08/25/11	YMH	n/a	n/a	V2W1363
JA84314-3	2W32363.D	1	08/25/11	YMH	n/a	n/a	V2W1363

The QC reported here applies to the following samples:

Method: TO-15

JA84264-10, JA84264-13, JA84264-14, JA84264-15, JA84264-16, JA84264-17, JA84264-18, JA84264-19, JA84264-20, JA84264-21

CAS No.	Compound	JA84314-3 ppbv	DUP Q	ppbv	Q	RPD	Limits
67-66-3	Chloroform	ND		ND		nc	12
56-23-5	Carbon tetrachloride	ND		ND		nc	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10
67-72-1	Hexachloroethane	ND		ND		nc	20
67-63-0	Isopropyl Alcohol	58.1		52.2		11	26
127-18-4	Tetrachloroethylene	1.6		1.9		17	17
79-01-6	Trichloroethylene	1.6		1.7		6	13

CAS No.	Surrogate Recoveries	DUP	JA84314-3	Limits
460-00-4	4-Bromofluorobenzene	83%	81%	65-128%

Summa Cleaning Certification

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1338-SCC	W32725.D	1	07/15/11	YMH	n/a	n/a	VW1338

The QC reported here (Summa A368) applies to the following samples:

Method: TO-15

Batch CP4902 cleaned 07/07/11: JA84264-5(A279), JA84264-6(A745), JA84264-9(A1012), JA84264-13(A828)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	85% 65-128%

Summa Cleaning Certification

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1338-SCC	W32742.D	1	07/16/11	YMH	n/a	n/a	VW1338

The QC reported here (Summa A1006) applies to the following samples: Method: TO-15

Batch CP4905 cleaned 07/11/11: JA84264-2(A826), JA84264-3(A772), JA84264-4(A304), JA84264-10(A820), JA84264-17(A857)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	84% 65-128%

Summa Cleaning Certification

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1339-SCC	W32752.D	1	07/18/11	YMH	n/a	n/a	VW1339

The QC reported here (Summa A854) applies to the following samples:

Method: TO-15

Batch CP4903 cleaned 07/08/11: JA84264-1(A664), JA84264-7(A822), JA84264-8(A671), JA84264-11(A278), JA84264-14(A636), JA84264-16(A472), JA84264-18(A653)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	84% 65-128%

Summa Cleaning Certification

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1340-SCC	W32779.D	1	07/19/11	YMH	n/a	n/a	VW1340

The QC reported here (Summa A483) applies to the following samples:

Method: TO-15

Batch CP4909 cleaned 07/12/11: JA84264-12(A218), JA84264-15(A840), JA84264-19(A302), JA84264-20(A017), JA84264-21(A366)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
67-66-3	Chloroform	ND	0.20	0.028	ppbv		ND	0.98	ug/m3
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
156-60-5	trans-1,2-Dichloroethylene	ND	0.20	0.033	ppbv		ND	0.79	ug/m3
156-59-2	cis-1,2-Dichloroethylene	ND	0.20	0.038	ppbv		ND	0.79	ug/m3
67-72-1	Hexachloroethane	ND	0.20	0.026	ppbv		ND	1.9	ug/m3
67-63-0	Isopropyl Alcohol	ND	0.20	0.059	ppbv		ND	0.49	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3
79-01-6	Trichloroethylene	ND	0.040	0.033	ppbv		ND	0.21	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	84% 65-128%

Summa Cleaning Certification

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3W934-SCC	3W23647.D	1	08/20/11	YXC	n/a	n/a	V3W934

The QC reported here (Summa A799) applies to the following samples:

Method: TO-15

Batch CP4964 cleaned 08/18/11: JA84264-2(A781), JA84264-4(A489)

CAS No.	Compound	Result	RL	MDL	Units	Q	Result	RL	Units
56-23-5	Carbon tetrachloride	ND	0.20	0.040	ppbv		ND	1.3	ug/m3
127-18-4	Tetrachloroethylene	ND	0.040	0.028	ppbv		ND	0.27	ug/m3

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	84% 65-128%

Volatile Surrogate Recovery Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Method: TO-15 **Matrix:** AIR

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JA84264-1	3W23665.D	87.0
JA84264-1	3W23663.D	90.0
JA84264-2	2W32345.D	75.0
JA84264-2	3W23666.D	88.0
JA84264-3	3W23669.D	86.0
JA84264-3	3W23668.D	85.0
JA84264-4	2W32346.D	73.0
JA84264-4	3W23670.D	87.0
JA84264-5	2W32347.D	81.0
JA84264-6	3W23672.D	91.0
JA84264-7	3W23673.D	90.0
JA84264-8	3W23674.D	91.0
JA84264-9	3W23675.D	89.0
JA84264-10	2W32367.D	75.0
JA84264-10	2W32348.D	78.0
JA84264-11	2W32349.D	79.0
JA84264-12	2W32350.D	86.0
JA84264-13	2W32368.D	73.0
JA84264-14	2W32369.D	79.0
JA84264-15	2W32370.D	78.0
JA84264-16	2W32371.D	89.0
JA84264-17	2W32372.D	84.0
JA84264-18	2W32373.D	80.0
JA84264-19	2W32374.D	89.0
JA84264-20	2W32375.D	87.0
JA84264-21	2W32376.D	87.0
JA84264-1DUP	3W23664.D	88.0
JA84264-5DUP	2W32356.D	82.0
JA84314-3DUP	2W32364.D	83.0
V2W1362-BS	2W32331.D	89.0
V2W1362-BSD	2W32332.D	91.0
V2W1362-MB	2W32333.D	79.0
V2W1362-MB	2W32355.D	79.0
V2W1363-BS	2W32353.D	88.0
V2W1363-BSD	2W32354.D	91.0
V2W1363-MB	2W32357.D	77.0
V3W934-SCC	3W23647.D	84.0
V3W935-BS	3W23651.D	98.0
V3W935-BSD	3W23652.D	99.0
V3W935-MB	3W23653.D	93.0

Volatile Surrogate Recovery Summary

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Job Number: JA84264
Account: CRANYNF Conestoga-Rovers & Associates
Project: Montague, Montague, MI

Method: TO-15	Matrix: AIR
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
VW1338-SCC	W32725.D	85.0
VW1338-SCC	W32742.D	84.0
VW1339-SCC	W32752.D	84.0
VW1340-SCC	W32779.D	84.0
V3W934-BS	3W23623.D	98.0
V3W934-BSD	3W23624.D	100.0
V3W934-MB	3W23625.D	91.0
VW1338-BS	W32718.D	99.0
VW1338-BSD	W32719.D	97.0
VW1338-MB	W32720.D	88.0
VW1339-BS	W32745.D	96.0
VW1339-BSD	W32746.D	96.0
VW1339-MB	W32747.D	88.0
VW1340-BS	W32773.D	95.0
VW1340-BSD	W32774.D	96.0
VW1340-MB	W32775.D	89.0

Surrogate Compounds	Recovery Limits
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S1 = 4-Bromofluorobenzene	65-128%
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5.5.1

5

Appendix C

Soil Gas Sampling Field Forms



Former Occidental Chemical Site
SG Sampling Field Form
Montague, MI

Location	Sample Name	Canister	Controller	Sample Time Start	Sample Time End	Leak Check	Initial Vacuum (Hg)	Initial Temp (F)	Initial Barometric Pressure (Hg)	Final Vacuum (Hg)	Final Temp (F)	Final Barometric Pressure (Hg)	PID Readings
SGMP-01	SGMP-01S	A664	FC063	1558	1638	✓	28.0	85.5	29.27	5.0	84.4	29.27	NA
8/15/11	SGMP-01I	A826	FC106	1620	1700	✓	28.5	85.1	29.27	5.0	80.8	29.27	NA
SGMP-02	SGMP-02S	A772	FC522	0857	0940	✓	29.0	66.6	29.28	5.0	70.7	29.28	NA
8/16/11	SGMP-02I	A304	FC160	0913	0955	✓	30.0	68.0	29.28	7.0	72.0	29.28	NA
SGMP-03	SGMP-03S	A279	FC085	1028	1113	✓	29.0	74.7	29.30	2.0	76.1	29.31	NA
8/16/11	SGMP-03I	A745	FC180	1044	1125	✓	30.0	75.2	29.30	6.0	77.2	29.31	NA
SGMP-04	SGMP-04S	A822	FC485	1306	1346	✓	30.0	89.1	29.38	7.0	85.6	29.41	NA
8/16/11	SGMP-04I	A671	FC166	1322	1402	✓	29.5	88.5	29.38	4.5	85.8	29.43	NA
SGMP-05	SGMP-05S	A1612	FC262	1435	1515	✓	30.0	81.1	29.42	6.0	78.3	29.38	NA
8/16/11	SGMP-05I	A820	FC280	1451	1531	✓	28.0	80.2	29.42	7.0	86.4	29.38	NA
SGMP-06	SGMP-06S	A278	FC509	1604	1644	✓	28.0	81.9	29.37	6.0	78.6	29.35	NA
8/16/11	SGMP-06I	A218	FC069	1620	1700	✓	27.5	81.1	29.37	5.5	77.0	29.33	NA
SGMP-07	SGMP-07S	A828	FC381	0920	1000	✓	29.0	69.6	29.30	6.0	70.7	29.30	NA
8/17/11	SGMP-07I	A636	FC365	0936	1016	✓	28.5	69.3	29.30	6.0	71.6	29.30	NA

Michael PAPP

Comments:

Sampler Name:

Date:

Sample Methodology:

Sample Analytical Meth

Project Number:

Leak Check! For SGMP-02S/02I, 9196 IHA used, 9196 IHA used for all.

GEN 2000 used for BP collection

[illegible]

Leak Check: 9/19/90 JFH used. GEM 2000 used to

100

Appendix D

Carbon Dioxide and Oxygen Soil Gas Measurements

APPENDIX D
Carbon Dioxide and Oxygen Measurements
Collected During Soil Gas Purging
August 2011

Gas Measurements	Units	SGMP-01		SGMP-02		SGMP-03		SGMP-04		SGMP-05	
GEM Landfill Gas Meter		5	15	5	15	5	15	5	15	5	15
Soil Gas O2	%	19.9	20.3	18.9	19.4	19.8	20	20	19.9	20.4	20.5
Soil Gas CO2	%	1	1.5	2.2	1.6	1	0.8	0.9	0.8	0.5	0.4

Gas Measurements	Units	SGMP-06		SGMP-07		SGMP-08			SGMP-09		
GEM Landfill Gas Meter		5	15	5	15	5	15	30	5	15	30
Soil Gas O2	%	20.6	20.6	20.1	20.1	20	20.6	20.2	20.5	20.4	20.5
Soil Gas CO2	%	0.3	0.4	0.8	0.9	0.6	0.6	0.7	0.4	0.5	0.4

Ambient O2	20.90%
Ambient CO2	0.00%